REMARKS

This preliminary amendment is being filed to present additional arguments to the Examiner in response to the final office action issued in the parent application. The parent application was amended to conform to the subject matter that the Examiner indicated to be allowable, and has since issued. For the reasons stated below, it is respectfully submitted that broader claim language is available. Favorable consideration of this application is respectfully requested in light of the amendments and following detailed arguments.

The Examiner rejected claims 1-9 under 35 U.S.C. §103 as being unpatentable over Eichler et al. Specifically, the Examiner stated that:

> The Eichler et al reference discloses a process for the direct chlorination of ethane to produce 1,2-dichloroethane wherein vaporous 1,2-dichloroethane is fed to a heat exchanger (13) through a pump (12) (See Figure). It is clear that the 1,2-dichloroethane is "compressed" by the pump. The determination of optimum conditions for maximum heat recovery would be within the skill of the ordinary artisan since heat recovery is a highly predictable physical operation. Furthermore, the use of any known means of compression could be obvious because the result would be predictable in that the 1,2-dichloroethane would be compressed before being fed to the heat exchanger.

Eichler et al. discloses the formation of 2-di-chloroethane by a direct chlorination process, by reaction of ethylene with chlorine. The reaction is catalyzed by metal halides which behave as Lewis acids and a halide of a metal of the first main group of the Periodic Table. Pressure and temperature are adapted to each other in such a way

that the reaction is carried out below the boiling point of EDC. Eichler states that the reaction temperature is from 50 to 105.degree. C, advantageously from 70 to 90.degree. C, and further that pressure and temperature are adapted to each other in such a way that the reaction is carried out below the boiling point of EDC. Eichler shows that the liquid is fed to the heat exchanger by a pump, which increases the pressure of the withdrawn liquid to compensate for pressure looses of the lines and the heat exchanger. Eichler states that "[t]he pressure in the expansion vessel is advantageously from 0.2 to 0.7 bar absolute. This reduced pressure is produced and maintained by means of customary fans or pumps, referred to below as a vacuum pump." Thus the pump does not cause the liquid to change its density, and other thermodynamic properties are essentially unaffected as well.

The applicant responded by indicating that the present invention, as defined in independent claim 1, discloses a process for heat recovery in the production of 1,2-dichloroethane, wherein the vaporous 1,2-dichloroethane is compressed and then fed to the heat exchangers for recovery. The pump of Eichler is used to maintain a pressure and temperature and not to compress the fluid, as is done in the present invention. As opposed to being "compressed", the liquid is merely pressurized. In contrast, the present invention utilizes a compressor to compress the gas phase vapor. By the action of the compressor, the density of the gas, along with other thermodynamic properties are maintained. Thus, the condensation temperature of the EDC-vapor is increased, and the condensation heat can be better utilized instead of

being wasted. Further, because of the extensive price differential between standard pumps and compressors (compressors being considerably more expensive), it is not within the ordinary skill of one in the art to utilize a compressor in the place of a pump. Pumps are common equipment in chemical manufacturing facilities, while compressors are only utilized where absolutely necessary, as they are among the most expensive elements in the plant. It would not be foreseen by one of ordinary skill in the art to utilize a compressor to replace a pump as shown in Eichler to optimize the use of waste energy, absent the disclosure of the present invention.

In the Examiner's response, it was indicated that claim 1 did not include a limitation to utilize a compressor. The Examiner further indicated that it was unclear what was meant by "the liquid being pressurized." The Examiner also indicated that applicants' references to pressure and temperature were not commensurate in scope with what was in the independent claim.

Claim 10 of the present application corresponds to the originally filed claim 1. With regard to this claim, the Examiner states that there is no limitation to use a compressor in this claim. It is respectfully submitted that claim 10 requires the vaporous 1,2-dichloroethane obtained from a direct chlorination reactor to be compressed. One skilled in the art would recognize that language calling for a vapor to be compressed would call for the proper equipment. One skilled in the art would recognize that the proper equipment to compress a vapor would be a compressor. While the inclusion of a compressor is not explicitly stated in the claim, it is submitted

that one skilled in the art would recognize that such equipment would be necessary to compress a vapor as stated in the claim.

It is further submitted that one skilled in the art would recognize a difference between compression and pressurizing. The Examiner stated that "It is clear that the 1,2-dichloroethane is 'compressed' by the pump." It is respectfully submitted that to one skilled in the art, the term "pressurize" means to increase the pressure level. The term "compress" means to decrease the volume by compression. One skilled in the art would recognize the difference between these terms, and would not equate pressurization to compression. Therefore, it is believed that claim 10 distinguishes over the applied reference.

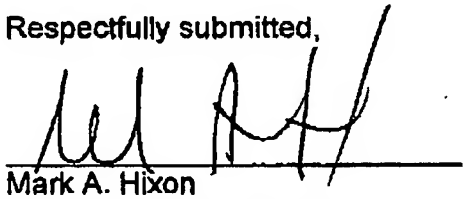
In order, however, to further distinguish over the applied reference, claim 10 has been amended to indicate that the compression of the vaporous 1,2-dichloroethan does not liquefy it. Support for this amendment is found, at least, in figure 1 and page 6 of the application as filed. Even after injecting liquid 1,2-dichloroethane the compressed vaporous 1,2-dichloroethan remains as vapor. It is submitted that this amendment further distinguishes over the applied reference. It is respectfully submitted that claim 10 is therefore allowable over the applied art of record.

In view of the above, it is respectfully submitted that independent claim 10 is not anticipated nor made obvious by the Eichler reference, and is therefore allowable over the applied art of record, as applied in the parent application. Claims 11-18 are

believed to be allowable based, at least, on their dependence, directly or indirectly, on what is believed to be an allowable base claim.

In view of the above remarks, a favorable reconsideration of the present application and the passing of this application to issue with all claims allowed are courteously solicited.

Respectfully submitted,



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